

His position in the St.-Petersburg Museum is now filled by Modeste Bogdanow, who has lately published a work on the Birds of the Caucasus, and whose recently issued article on the Birds of the Black-earth Zone of the Volga and its Central and Lower valleys contains some excellent field-notes.

XVI.—Notes on a 'Catalogue of the Accipitres in the British Museum' by R. Bowdler Sharpe (1874). By J. H. GURNEY.

[Continued from 'The Ibis,' 1879, p. 470.]

FROM the genus *Henicopernis*, which I last considered, the transition is easy to that of *Pernis*, to which I now propose to refer, and, in doing so, to allude first to the only European species of the genus, *P. apivorus*.

Mr. Sharpe does not mention the Asiatic range of this species, and refers but briefly to the southern limits of its winter migration, which extend to the African continent and have even been known to reach (though very rarely) South Africa and Madagascar.

So far as I know, but one instance (that of a specimen in the British Museum) is recorded of the occurrence of *Pernis apivorus* in Madagascar, and but three of its appearance in South Africa: one of these birds was obtained by Le Vailant, and described by him under the name of "Le Tachard" in the 'Oiseaux d'Afrique,' vol. i. p. 82; and the other two occurred in Natal, as recorded in 'The Ibis' for 1859, p. 240, and for 1860, p. 204*.

Several more northerly African localities where *Pernis apivorus* has been met with as a winter migrant are mentioned in the article on this species in Mr. Dresser's 'Birds of Europe,' where many details are also given as to its European habitats, and some relating to its Asiatic range; but that article does not refer to its occurrence in Siberia (where it is

* One of these Natal specimens is preserved in the Norwich Museum; the other I have unfortunately lost sight of.

said to have been found by Pallas*), nor to its occasional presence in Northern China, as recorded by M. David, and it leaves the question undecided as to whether the *Pernis* which has been found in Japan really belongs to this species.

The learned authors of the "Animalia Vertebrata" in the 'Fauna Japonica,' at p. 24 of their volume on the ornithology of that country, write thus:—" *Pernis apivorus* ; cette espèce . . . qui se trouve, suivant Pallas, quoique en petit nombre, dans toute la Sibérie, habite également le Japon, d'où nos voyageurs ont apporté en Europe deux femelles adultes, qui ne se distinguent ni par leurs formes, ou par leurs dimensions, ni par leurs formes ou leur organisation, des individus tués dans les différentes contrées que nous venons de nommer" (*i. e.* Europe, Guinea, Egypt, and Arabia).

Professor Schlegel, in his 'Museum des Pays-Bas,' Pernes, p. 2, under the head of *Pernis apivorus*, has the following entry, which probably refers to one of the above-mentioned specimens:—"Femelle, plumage parfait, Japon, Voyage de Bürger."

I regret that I omitted, when at Leyden some years since, to examine this Japanese specimen ; but Mr. Sharpe, who has subsequently visited the Leyden Museum, appears to have arrived at the conclusion that it is referable to *P. ptilorhynchus*, as in his list of the synonyms of that species he includes " *Pernis apivorus*, Temm. & Schl. Faun. Japon. Aves, p. 24," which Captain Legge also does in his work on the Birds of Ceylon, p. 89.

Mr. Seebohm informs me that it was on the authority of this item in Mr. Sharpe's volume, that he stated in 'The Ibis' for 1879, at p. 42, that the Japanese *Pernis* "was incorrectly identified by Temminck and Schlegel with the European Honey-Buzzard," and that he has not himself seen a Japanese specimen.

Mr. Sharpe also refers to *P. ptilorhynchus* " *Pernis apivorus*, Swinhoe, P. Z. S. 1871, p. 341," which seems to involve a conflict of authorities as to the species of *Pernis* that

* It does not appear to have been noticed in Siberia by subsequent explorers; *vide* Newton's Yarrell, vol. i. p. 124.

occurs in Northern China. Mr. Swinhoe's paragraph on the subject is as follows :—" *Pernis apivorus* ; Père David notes this as found about Pekin in autumn ; Schlegel has it from Japan."

The *Pernis* of Northern China is given as *P. apivorus* by MM. David and Oustalet at p. 18 of their work on the Birds of China ; and M. David there remarks respecting it, " Elle s'avance même, bien que rarement, jusqu'en Chine, et j'ai eu l'occasion de la prendre dans la partie septentrionale de l'empire."

The discrepancy between Mr. Sharpe's views on this point and those of the continental ornithologists from whom I have quoted makes it very desirable that specimens of *Pernis* from Japan and China should be carefully examined whenever opportunity offers.

There is no European bird of prey which, both in its adult and still more in its immature plumage, is subject to so complex a miscellany of variations as *Pernis apivorus*. Some of its principal phases of plumage are described in Mr. Sharpe's volume ; and these, with others, have been subsequently treated of in the article on this species in Mr. Dresser's 'Birds of Europe.' An excellent epitome of this subject is also given by Mr. Hancock at p. 7 of his 'Catalogue of the Birds of Northumberland and Durham.' I have but little to add to the information which has been collected by these authors ; but there are a few points to which I think it may be desirable that I should briefly allude, and which I will preface by two quotations from the pens of Mr. Dresser and of Mr. Hancock. Mr. Dresser remarks, "The inference I deduce from the examination of various examples is, that in immature, and also to some extent in mature dress, the present species is subject to a tendency to albinism . . . and towards melanism . . . but, as a rule, the immature birds vary more than the old ones." Mr. Hancock observes, "The plumage of this species varies much, scarcely two individuals being found alike . . . there are two principal complexions or varieties—one dark, the other pale—affecting equally the sexes, the adult and the immature individuals."

So far as I have observed, the coloration of the plumage in young specimens is much more often dark than pale; individuals as darkly and uniformly coloured as the young male from *Sarepta* figured by Mr. Dresser are by no means very uncommon; and this plumage would seem to be retained at least to the second moult, as a female which was killed, with two young in its nest, near Romsey, is described by Mr. Sealy in the '*Zoologist*' for 1856, p. 5059, as "of a beautiful purple brown all over, no white appearing anywhere, the tail slightly barred with two shades of brown."

This dark plumage is, in young birds, frequently more or less varied by white tips to many of the feathers; and the extent of such variation is not always identical, even in young birds from the same nest. Two such nestlings, taken in the New Forest, and now in my possession, may serve as an instance of this, one of them being entirely dark, with the exception of white tips to the tertials and rectrices, and of transverse white bars on the under tail-coverts, whilst the other has not only the tertials and tail-feathers white at the tips, but also the feathers of the nape, the interscapulars, and the wing-coverts, besides a very decided predominance of white on all the under surface except the upper breast, where the proportions of white and brown colouring are pretty evenly balanced; the dark portions of the plumage in this specimen, however, are quite as fuliginous as those of its more whole-coloured fellow.

The variation in this white-tipped nestling produces a result similar in character, though less in degree, to that exhibited in the white-breasted and nearly white-headed specimen in the Norwich Museum which was killed at Horning, Norfolk, in September 1841, and has been figured by Mr. Dresser, and which, as remarked by that gentleman, is in a phase of plumage of decidedly rare occurrence, though now and then met with. Mr. Dresser has only seen one other example of this peculiar phase; but he quotes Naumann's description of the young male as exhibiting a similar character of coloration. Mr. Hancock also possesses and has figured a specimen of this description, killed at Hawick, which is shown

to have been a young bird by the fact of its irides having been grey instead of yellow*. The British Museum possesses a similar specimen from Syria ; and another example, with an equal proportion of white in its plumage, and similarly distributed, is represented on pl. 5 of Fritsch's 'Vögel Europas.' Degland also mentions one in the Museum at Brussels as being "presque blanche" (*vide* 'Ornithologie européenne,' vol. i. p. 60).

Mr. W. R. Fisher, in an interesting paper on the variations of plumage in *Pernis apivorus*, published in the 'Zoologist' for 1843, p. 375†, figures and describes the partially white Horning specimen above referred to, and also a very similar specimen shot in Gawdy-Hall wood, Norfolk, as to which he remarks that it had "the space round the eye, and between it and the beak, dark ash-grey," which would seem to indicate that it was an adult bird, and probably a female. This is the only instance that I remember to have met with, either in print or in collections, in which grey on the head was present in a specimen in which the sides and back of the neck and the greater part of the crown of the head were white—examples that are white on all those parts being usually immature, and the grey on the head being, in this species, an evidence of maturity. Mr. Fisher speaks of the Gawdy-Hall bird as being, at the time when he wrote, in the Norwich Museum ; but either this is a mistake, or the specimen has long since ceased to exist in that collection, as it is not there now, and I can find no record of it except in Mr. Fisher's article.

Phases of plumage sometimes occur intermediate between such specimens as the speckled-necked nestling from the New Forest, which I have mentioned, and the white-necked Horning bird above referred to ; the Norwich Museum possesses

* In the young birds of this species the irides are grey in some specimens and brown in others ; in the adults they are of a clear but rather pale yellow.

† It may be right to mention that the views held by Mr. Fisher in 1843, as to the sequence of the changes of plumage, are not entirely in accordance with what is now known to be the fact in this respect.

such a specimen, of a remarkably intermediate character, apparently a young male, from Beyrout.

I may also mention that, in some nearly whole-coloured young birds of this species, the dark purplish or chocolate-brown which characterizes such specimens as the almost melanistic Sarepta male figured by Mr. Dresser, is replaced by a cinnamon-brown of different shades of intensity, which I imagine to be the same phase of plumage as that which Mr. Sharpe, in describing a young bird in the Leyden Museum, speaks of as "very Kite-like in appearance:" two immature specimens in this cinnamon-coloured plumage were killed in company, whilst plundering a wasps' nest, at Honingham, in Norfolk, in September 1841*; and one of them is preserved in the Museum at Norwich.

Mr. Gould figures in his 'Birds of Europe' an immature specimen of *Pernis apivorus* with the entire mantle and the upper surface of the tail brown, but of two shades, being especially so varied on the wing-coverts, secondaries, tertials, and rectrices; the upper surface and sides of the head are clothed with dark brown feathers, showing conspicuous white bases; and all the underparts are white, with dark brown centres to the feathers, increasing in breadth as they approach the tail, and assuming in the abdominal region the aspect of imperfect transverse bars.

Mr. Dresser also figures a very similar specimen as a "young female," taken near Berlin.

I am disposed to think that this phase of plumage is indicative of an already commenced change from immature to adult dress, and that the appearance of imperfect transverse barring on the abdominal region is due to that cause.

Mr. Hancock, at p. 8 of his 'Catalogue of the Birds of Northumberland,' describes a similar bird, but apparently somewhat older, the "flanks, belly, thighs, and under tail-coverts" being all transversely barred, and the irides "yellow," as an "adult female of the second or pale variety."

* In the early autumn of 1841 several immature specimens of *Pernis apivorus*, in various phases of plumage, were obtained in different parts of Norfolk.

The barring of the tail in this species is thus described by Mr. Hancock—"tail with three or four broad brown bands and smaller intermediate wavy ones." So far as I have observed, the number of the broader bands, both in adults and in immature specimens, is more frequently four than three; and the Norwich Museum possesses a nearly adult female from Fantee, in West Africa, in which the number of such bars is five; but the uppermost of these is somewhat rudimentary and imperfect. On the other hand, Mr. Sharpe describes a young bird, almost a nestling, in which he observed but two principal cross bars on the tail in addition to six or seven of the minor intermediate ones; and the immature bird from Beyrout in the Norwich Museum has a similarly marked tail, from which the usual broad subterminal band is entirely absent.

I do not find any differences in the barring on the tail between immature and adult specimens that can be considered as of constant occurrence; but in the former it is frequently less regular than in the latter, and in young birds of a dark complexion of plumage it often happens that the broader bars on the tail are singularly contorted. I have only once met with this peculiarity in an adult—a female killed whilst nesting in the New Forest; but in this instance the irregularity is limited to the lateral rectrices, and therefore most probably was gradually disappearing as the bird became more mature; I may add that the general colour of the plumage in this specimen is not particularly dark. A good example of contortion in the bars of the tail will be found in the figure of a young female from Suffolk in Meyer's 'British Birds,' pl. 17, 8vo edition; but I have not seen any instance of the contorted markings being quite so distinctly visible as in Meyer's figure, which I therefore suspect may be a little exaggerated as regards coloration.

I consider that the normal (by which I mean the most common) dress of the adult male of *P. apivorus* agrees with that described under this head by Mr. Sharpe, except that, according to my observation, most adults of both sexes have all the underparts, from the upper breast downwards, more

or less distinctly barred with transverse bands of white, alternating with brown of nearly the same tint as that of the mantle. Grey-capped males in this dress are figured in Buffon's 'Planches Enluminées' and in Gould's 'Birds of Great Britain.'

The normal plumage of the adult female is, in my view, that which corresponds with the male dress represented in these figures, except that the grey on the head is limited to the lores, and is more tinged with brown than in the adult male; there is, however, in the British Museum a specimen procured by Professor Meves at Encoping, in Sweden, and said to be a female, in which the entire sides of the head are grey, and the brown plumage on the crown of the head is suffused with a faint but perceptible greyish tinge. Canon Tristram also possesses a specimen, shot at Tunis in the month of November, and marked as a female, in which both the lores and crown of the head are grey. This specimen has a wing-measurement of 15·9 inches, the tarsus and middle toe *s. u.* being each two inches in length; it is evidently adult, and, if really a female, is probably a very old one.

The adult male described by Mr. Sharpe would seem, by what he says as to the coloration of the underparts, to be a bird of a similar complexion of plumage to the old white-breasted male from near Stockholm figured by Mr. Dresser. This phase of plumage both Mr. Sharpe and Mr. Dresser treat as normal in the old male; and I so far agree with them, that I do not recollect to have met with it in a female; but, on the other hand, I am disposed to regard it as less due to age than to partial albinism.

Mr. Hancock considers this plumage to be characteristic of "the adult male of the second or pale variety." Mr. Hancock's "adult male of first or dark variety" appears, from his description, not to differ materially from that which I consider to be the adult male in normal dress.

Adult females are not unfrequently darker, both above and below, than that phase of plumage which I consider the normal type; one of these darker females, known to be

several years old, and obtained at Altenkirchen in Rhenish Prussia, is described and figured in Mr. Dresser's work. Having been enabled, by the kind permission of Mr. Dresser, to examine this interesting specimen, I may remark that his artist appears to me to have represented the dark markings on the breast of this female too much as spots, and not sufficiently as assuming, to a great extent, the arrangement of transverse bars of dark brown alternating with yellowish white.

Some specimens of *P. apivorus*, both adult and immature, but especially the latter, when in dark plumage, show indistinct traces of a blackish stripe on either side of the neck, commencing sometimes just below the corner of the gape, and sometimes rather lower down, and extending a little more than halfway down the neck; this malar stripe is interesting, as it is frequently much more strongly developed in the allied eastern species, *P. ptilorhynchus*.

I have notes of measurements taken by myself from thirteen specimens of *P. apivorus*, with the following results, viz. Wing-measurements from 15·1 to 17·5 inches, tarsus from 2·0 to 2·4, middle toe *s. u.* from 1·5 to 2·0.

The specimen which measures 17·5 inches in the wing, is the one from Fantee which I have previously mentioned, and which appears to be a nearly adult female; the other twelve examples have each a wing-measurement of less than 17 inches; and I therefore consider the figure of 17·2 inches, given by Mr. Sharpe as the wing-measure of an adult male, to be an exceptionally high one. Mr. Dresser gives the wing-measure of an old male as 15·8, and the tarsus as 2 inches, and the corresponding dimensions of an old female as respectively 16·2 and 2·1; these figures, I think, represent very fairly the usual average of size in this species.

In 'The Ibis' for 1875, at p. 102, mention is made of a remarkably large specimen of *P. apivorus*, shot by Mr. N. A. Severtzoff in Turkestan; but its wing-measurement, in the form usually cited, is unfortunately not given.

The geographical distribution of *Pernis ptilorhynchus**,

* Mr. Sharpe spells this name as "*ptilonorhynchus*;" but it seems to me

the second species of this genus, though extensive, is less so than that of *P. apivorus*; its northern limit (excluding from consideration its alleged, but, I think, extremely doubtful occurrence in Japan, to which I have already referred) extends from the Punjaub westward as far east as the Philippine Islands*, and its southern from Ceylon to Java.

P. ptilorhynchus seems to be quite as liable to individual variation as *P. apivorus*, the general character of the variations being, for the most part, very similar in the two species. Those occurring in *P. ptilorhynchus*, however, seem to include some slight modifications due to the effects of geographical distribution, which does not appear to be the case in *P. apivorus*.

The differences in the barring on the tail between immature and adult specimens is more marked and more constant in *P. ptilorhynchus* than in *P. apivorus*, and is referred to in the three principal descriptions which we possess of the changes and variations of plumage incident to this species, viz. those contained in the articles on *P. ptilorhynchus* in Mr. Sharpe's 'Catalogue,' in Mr. Hume's 'Scrap-Book,' and in Capt. Legge's 'History of the Birds of Ceylon.'

Mr. Hume, at page 336 of his 'Scrap-Book,' writes thus:—"The only marks by which I could certainly distinguish the older from the younger birds were:—first, that the older have two very broad well-marked dark-brown bands visible on the tail-feathers, and the space of paler brown enclosed between them is freckled and mottled with a lighter colour, but not barred, while in younger birds the tail is invariably banded, more or less plainly, with numerous pale, narrow, wavy streaks,

that this alteration is incorrect. Mr. Sharpe refers to Stephens's continuation of Shaw's 'Zoology,' and also to Mr. Holdsworth's pages in the P. Z. S. for 1872, as cases in which the spelling of this word which he uses has been adopted; but this is a mistake, as both these authorities spell the name "*ptilorhynchus*," which, with the exception of the insertion of the letter *h*, is the spelling originally used by Temminck.

* Of three specimens which I have seen from the Philippines, I only know the exact locality of one, a female from Butuan, in the island of Mindanao, recorded by the late Lord Tweeddale in the P. Z. S. for 1877 p. 821.

besides two or more broadish* bands of darker brown, which broadish bands, however, are neither half the width, nor so well defined, nor so dark as in the old; and secondly, a very similar difference in the banding of the primaries beyond the emarginations. All other signs of age appear deceptive."

As an instance of abnormal variation in the barring of the tail, not very dissimilar to that which is sometimes met with in *P. apivorus*, I may mention that a specimen obtained near Calicut, and preserved in the Norwich Museum, agreeing generally with Mr. Sharpe's description of the "intermediate stage," but apparently an older bird, is remarkable for having the inner web of the outer pair of rectrices largely blotched with contorted dark markings, the other feathers of the tail being of the normal adult character.

Captain Legge describes the "young" plumage of *P. ptilorhynchus*, observed by him in Ceylon, as having the "throat and entire under surface, with under-wing and the edge above the metacarpal joint, pure unmarked white;" and the Norwich Museum possesses a young Malabar specimen (from its small size apparently a male) which agrees with this description; but it seems to me that in this species, as in *P. apivorus*, no invariable rule can be laid down as to the coloration of young birds, especially on the under surface. Thus Mr. Hume, at p. 331 of his 'Scrap-Book,' mentions "one quite young bird" as having "the whole head, neck, and underparts fawn-coloured, the throat and chin paler and unstreaked;" and Mr. Sharpe describes a young bird as having the "entire under surface of the body white, with distinct longitudinal shaft-lines of blackish brown, broader on lower throat and sides of the latter, and thus forming an irregular streak on those parts; under wing-coverts pure white."

Mr. W. E. Brooks, in a paper published in the 'Journal of the Asiatic Society of Bengal,' vol. xlii. pt. 2, has a note on this species at p. 243, in which he says:—"A young bird from the nest, which I once kept in confinement, had the breast of a rather light earth-brown, each feather having a black central stripe; . . . the upper plumage was a very

* In Mr. Hume's article "brownish," apparently by a misprint.

dark clove-brown ; even in this young bird the crest was well developed."

Mr. Hume, in continuation of the passage which I have already quoted from p. 336 of his 'Scrap-Book,' remarks :—
"Year-old birds have, at times, the lores, cheeks, and face quite grey, while old birds are to be seen nearly white below, each feather with a conspicuous median stripe of the darkest brown ; some young birds, too, are so dark a brown above as, in some lights, to appear almost black, while the old are often a mixture of pale brown and greyish."

The British Museum possesses a specimen from Kamptee, in Central India, which is not only as dark on the upper parts as is described by Mr. Hume in the concluding sentence of the above paragraph, but is equally so on the underparts, resembling the darkest phase of the immature *P. apivorus* ; this specimen has grey lores, and a blackish crest a trifle over an inch in length. A similar bird from Malacca, but without grey lores and crestless, being apparently quite young, and probably not fully grown, was in the collection of the late Lord Tweeddale ; this example shows slight traces of transverse bars on the abdomen ; and both it and the dark bird from Kamptee have the three dark throat-marks strongly developed.

In reference to these throat-marks it may be well to observe that they appear to be at all ages a very variable character, sometimes being either partially or entirely absent, and when present being more extended and more strongly marked in some individuals than in others. The central or gular mark (which I have never met with in *P. apivorus*) is of more irregular appearance in *P. ptilorhynchus* than the two malar or side-stripes, being frequently wanting in specimens in which the latter are distinctly present ; but, on the contrary, the gular stripe is never present (so far as I have observed) when the malar marks are absent.

Mr. Hume, in the exhaustive article in his 'Scrap-Book' on this species as observed in India, from which I have already quoted, describes in detail some of the variations of plumage incident to the adult birds and to those passing from im-

mature to adult dress, adding the remark :—" Almost every possible combination of the varying plumage and shades of colour of different parts above described may be met with."

Captain Legge, in his article on this species in his ' Birds of Ceylon,' gives particulars of a stage of plumage which he considers, and, I think, rightly, to be " younger " than the " fully adult," and states that it " represents the generality of apparently adult birds killed in Ceylon." The majority of Indian specimens which I have seen exhibit a plumage agreeing, more or less closely, with that thus described by Captain Legge, which appears to be also very much the same with that described by Mr. Sharpe as the " intermediate stage."

The almost uniformly coloured " chocolate-brown " or " earth-brown " plumage, with much grey on the head and throat, which is figured by Temminck in the ' Planches Coloriées,' pl. 44, and which Mr. Sharpe and Captain Legge consider to be characteristic of the fully adult bird, is, I believe, a dress which is limited to birds of that age ; but whether these always attain it I greatly doubt, as I suspect that some specimens permanently retain a phase of plumage very much agreeing with that described by Mr. Sharpe as peculiar to the " intermediate stage," but exhibit nevertheless on the tail the markings indicative of adult age.

My late friend Mr. A. Anderson informed me that, according to his experience, the grey on the crown of the head in *P. ptilorhynchus* was (as, usually, in *P. apivorus*) a peculiarity of the adult male ; but the Norwich Museum possesses a specimen from the Punjaub with the grey on the head diffused both over the throat and on the crown, which has a wing-measurement of 17·2 inches, and is therefore almost certainly a female, and no doubt an old bird, the plumage agreeing with that of Temminck's plate to which I have already referred ; most probably, however, the occurrence of the grey crown in the female of this species is quite exceptional.

Specimens of *P. ptilorhynchus* from the more southern parts of India are scarce in the museums of this country ; but judging from the few that I have seen, I should not consider that they differ from those of Northern India. Mr. Hume, how-

ever, writes thus in his 'Rough Draft of Nests and Eggs of Indian Birds,' p. 55 :—"It is not improbable that the Bengal race may have to be separated from the Upper and Southern Indian one : in the former the crest would appear to be always well developed, and, according to Blyth, the iris red ; whereas, while in the latter the crest is at best rudimentary, the iris is bright yellow. This refers to adults ; in the young the iris is brownish red in the former, brownish yellow in the latter."

I have not myself observed any marked difference as to the length of the crest in specimens from different parts of India. The longest I have seen is that of the Punjaub adult female in the Norwich Museum, which measures 1·9 inch ; I have seen a nearly adult male and female from Secunderabad with crests respectively 1·5 and 1·6 in length ; and the adult bird in the Norwich Museum from near Calicut has a crest measuring 1·3.

Other Indian examples that I have examined from various localities have yielded the following results : viz. one from Madras, one from the Deccan, four from Nepal, one from the Himalayas, and one from "Northern India" have been destitute of any crest ; I have found crests of less than an inch in length in one bird from Madras, in one from near Calicut, one from the Deccan, one from Darjeeling, one from Agra, and one from "Northern India," crests measuring 1·1 in one specimen from Kamptee and in one from Bengal, crests of 1·2 in length in two others from Kamptee, and a crest measuring 1·5 in a specimen from "Southern India."

With regard to the variation in the colour of the iris in *P. ptilorhynchus*, I may mention a dark-coloured short-crested specimen which was living some years since in the gardens of the Zoological Society of London *, and which was recorded as from India, but without any more definite locality. This bird, when first received at the gardens, had reddish-brown irides, which, as it grew older, became cherry-red, and the late Mr. Blyth, whose attention I called to the circumstance, assured me that such was always the case in Bengal specimens.

* This specimen was referred to by the late Mr. Blyth in 'The Ibis' for 1870, p. 160.

In reference to this subject, Mr. W. E. Brooks wrote to me in 1873 that all the specimens shot by him in Northern India "had reddish-brown eyes (a very red-brown), both old and young."

The Norwich Museum possesses an adult male obtained at Agra by Capt. G. F. L. Marshall, who has marked on the ticket attached to it "irides red."

An adult female from Secunderabad, which is also preserved in the Norwich Museum, is marked by the collector as having the irides "blood-red;" but in the case of the nearly adult male and female from that locality, to which I have already referred, and which were in the collection of the late Lord Tweeddale, the irides of the female were noted by the collector as "yellow," and those of the male as "bright yellow."

In Tenasserim and Burmah a variation in the colour of the iris of this species seems also to occur.

Mr. Hume, in 'Stray Feathers,' vol. vi. p. 23, mentions an adult male shot at Moulmein, in which the irides were dark brown; and the late Lord Tweeddale had another adult male, obtained at Tonghoo by Lieut. Wardlaw Ramsay, who had noted the irides as "burnt brown." On the other hand, Mr. Hume records in 'Stray Feathers,' vol. iii. p. 36, an adult female obtained by Mr. Oates in Upper Pegu, as having the irides "bright yellow."

Further to the east, the female from Butuan in the island of Mindanao, in course of transition from immature to adult plumage, recorded by Lord Tweeddale in the P. Z. S. for 1877, p. 821, and to which I have already referred, was noted by the collector, Mr. Everett, as having the irides "white." This is the only instance I have met with of a white iris in *P. ptilorhynchus*, though in the closely allied *P. apivorus* I have seen young birds with the irides so faintly tinged with straw-colour as to be very nearly white.

I have no information as to the colour of the iris in this species in any locality, other than those already mentioned, except Ceylon, in regard to which Captain Legge writes thus in his work on the birds of that island:—"Iris golden yellow, yellow mottled with brown, or yellow with a pale outer circle,

... never red as in the Bengal race. . . . *Young* . . . iris in some yellow, in others brownish yellow, sometimes with a dark inner edge."

This species appears to be, for the most part, a migratory visitor to Ceylon; and Captain Legge's observations as to the times and places of its arrival are curious and interesting: but some doubt still exists as to the countries from which it migrates to the shores of Ceylon; and the full elucidation of this question seems to require more complete data than we at present possess.

Some of the Ceylon specimens which I have seen are remarkable for the richness of the dark rufous-brown tints on the underparts, exceeding in this respect any I have seen from India. Those that I have examined have crests varying in length from 1.1 inch to 1.9.

Specimens from Burmah and Pegu, judging from the few that I have seen, and from others recorded by Mr. Hume, appear usually to have either no crests or but very short ones, the longest I know of being a *Thayetmyo* example, with a crest measuring 1.5, mentioned by Mr. Hume in 'Stray Feathers,' vol. iii. p. 36.

Further to the south, longer crests have in two instances been recorded: the specimen from Mergui, for which the late Mr. Blyth proposed the name of "*brachypterus*," considering that it might prove specifically distinct, is said to have had a crest 2.5 inches in length; and Mr. Hume, in 'Stray Feathers,' vol. vi. p. 24, mentions a Malaccan specimen in his possession with a crest 2 inches long, and adds, "the plumage is somehow different from and altogether blacker and intenser than that of any Indian specimen I possess or have seen."

I may also mention that the Norwich Museum possesses an immature specimen from Siam, which has only a slight, incipient crest, and another, apparently a little older, from Saigon, in which the crest measures 1.2; both these specimens resemble the majority of Indian examples of a similar age.

The southern range of this species extends to the islands of Sumatra, Bornco, Java, and Banka; but I have never met

with a specimen from the last-named island, and will therefore only refer to those that have been obtained in Java, Borneo, and Sumatra.

Mr. Sharpe, referring to specimens from Java, writes thus, "Examples from the latter locality in the Leiden Museum appeared to me to be inseparable from Indian birds, but had enormous crests;" and he describes one of the Java specimens in the Museum as "changing from the tawny plumage to that of the adult with the grey face; it has . . . a black crest 3·7 inches long."

Professor Schlegel figures, on plates 25 and 26 of his 'Valk-Vogels,' six Javan specimems of *P. ptilorhynchus*, of which that represented by figure 1 of pl. 25 is (if I mistake not) the specimen referred to in Mr. Sharpe's description which I have just quoted; it is remarkable not only for the length of the crest, but also for the very bright rufous of the upper breast and throat, the same colour being equally conspicuous on the underparts of another Javan specimen, figure 2 on the same plate: if the rufous tints in these two figures have not been exaggerated by the colourist, they exceed in brightness those of any other examples with which I am acquainted.

An immature specimen in the Norwich museum from the neighbourhood of Batavia is of a much less bright rufous on the underparts than the two figures above referred to, and is destitute of any crest.

Three crestless Javan examples are also represented by Professor Schlegel (pl. 25. fig. 3, and pl. 26. figs. 1 & 2); they are in different stages of plumage, and do not appear to differ from the corresponding phases of coloration in Indian specimens.

Figure 3 of pl. 26 represents an adult bird, like the grey-headed uniform adults which are frequently met with in India, and possess a fully developed black crest.

I may add that in an adult Javan specimen in the Derby Museum at Liverpool the crest measures only 1·1 inch in length, showing that in Java, as elsewhere, the length of the crest is a very variable feature.

The only example of this species which I have seen from Borneo was obtained at Bandahan, in that island, and is in

the possession of Canon Tristram, to whose kindness I am indebted for an opportunity of examining it. This specimen much resembles the adult bird from Java described by Mr. Sharpe and figured by Prof. Schlegel*, to which I have already alluded; it has, however, a shorter crest, measuring only 1·9; and the rufous on the sides of the neck and on the breast is less bright than is represented in that figure, from which it also differs in having the buffy white marks on the abdomen more in the form of bars, alternating with indistinct transverse bands of two shades of brown, and in the pale space across the centre of the tail being darker towards the tip of the tail than towards its base. I may add that a portion of the shaft of the rectrices passing through this pale space is white.

A specimen very similar to this Bornean example has been kindly lent to me by Lieut. Wardlaw Ramsay, by whom it was recently received from the hill country of Western Sumatra; but this example has a crest measuring 2·3 inches in length, and is also remarkable for the unusual breadth of the dark subterminal bar on the tail, which measures 2·3 inches from its upper to its lower edge.

Des Murs, at pl. 13 of his 'Iconographie Ornithologique,' has figured the type specimen of Lesson's "*Pernis torquatus*," and states that "le voyageur Duvaucel l'a rapporté au Muséum d'Histoire Naturelle en Septembre 1821 de Sumatra." Judging from Des Murs's figure and description, this Sumatran specimen is an example of *Pernis ptilorhynchus* in the stage described by Mr. Sharpe as "intermediate," and, except for its somewhat longer crest, does not differ from many examples in a similar phase of plumage obtained in India.

Another, more fulvous, but crestless Sumatran specimen has been figured by Müller and Schlegel in Temminck's 'Verhandeligen &c.,' Aves, pl. 7: it is a young female, and is no. 6 in Professor Schlegel's list of the birds of this species in his 'Museum d'Histoire Naturelle des Pays-Bays,' *Pernes*, p. 3. Mr. Sharpe briefly describes this specimen, but does not mention that it was obtained in Sumatra.

* Valk-Vogels, pl. 25. fig. 1.

A fourth Sumatran example*, and by far the most remarkable that has come under my notice from that island, was observed at Sockedana, in South-eastern Sumatra, and was described in 'The Ibis' for 1877, p. 286, by the late Lord Tweeddale.

When I examined this curious and unusually marked specimen, I noted a few details respecting it which are not referred to in Lord Tweeddale's description, and which, I think, may be worth recording as supplementary to it. The black plumage of the head, except the dark grey lores, and also of the back and sides of the neck, is varied by the feathers having pure white bases; the dark brown of the mantle shows three distinct shades of that colour disposed in transverse bars on each feather; the feathers of the upper tail-coverts have the bases white, succeeded by a dark brown bar, then by a very narrow white one, next by one of light brown, and after that by a subterminal one of dark brown, followed by a narrow white tip; the whole of the under surface posterior to the upper breast (except the flanks) is regularly and transversely barred, as low as the vent, with alternate bands of brownish black and of white, the latter below the breast being tinged with buff; below the vent, and somewhat higher on the flanks, the dark transverse bars become broader than those which are buffy white, and this disparity gradually increases down to the tips of the under tail-coverts; the white bars on the under wing-coverts assume the form of two pairs of spots on each of the feathers next the primaries. The pattern of the markings on the under surface of this specimen shows a remarkable resemblance to the corresponding markings in *Pernis celebensis*; but the transverse abdominal bands are considerably broader than in that species. Lord Tweeddale gives the

* In referring to this specimen, I cannot refrain from alluding, with great regret, to the loss of two kind and valued friends of mine, the late Mr. E. C. Buxton, by whom it was obtained in Sumatra, and the late Lord Tweeddale, by whom it was described in the pages of 'The Ibis,' both of whom have been removed from amongst us since the publication, in 'The Ibis,' of Lord Tweeddale's paper on Mr. Buxton's Sumatran collection.

length of the crest in this specimen as "about two and a quarter inches." I made it a trifle less, viz. 2·1.

As I have already mentioned, I have only had an opportunity of examining three specimens of *P. ptilorhynchus* from the Philippine Islands. Of these, one is an immature bird in the Derby Museum at Liverpool, respecting which I have the following note:—"Breast cinnamon, with strong dark shaft-marks; abdomen and thighs cinnamon, crossed with white; mantle dark brown, with the feathers slightly edged with light brown; length of crest 1·2."

Another is the female from Butuan, in the island of Mindanao, which was described by the late Lord Tweeddale in the P. Z. S. for 1877, p. 821; this specimen, which is in process of change from immature to adult dress, has a crest measuring 1·1 in length.

The third, which is preserved in the Norwich Museum, has a crest of very similar dimensions, measuring 1·2. In this specimen the upper surface, wings, and tail resemble the darker-complexioned Indian examples; the grey on the head is confined to the sides only, and is tinged with brown on the ear-coverts; the throat shows the gular and two malar stripes distinctly marked in black, the interspaces being buffy white with narrow dark shaft-marks to each feather; the feathers of the upper breast are brownish black, with cinnamon-brown bases and edges; the remaining underparts, including the under wing-coverts, are cinnamon-brown, varying a little in the richness of the tint, and with narrow dark shaft-marks on the feathers of the lower breast, which are also transversely marked with very narrow bars of two shades of brown; the front tertial feathers are narrowly barred and also tipped with brownish white, and the under tail-coverts more broadly so.

It may be desirable to add a few words as to the dimensions to which *P. ptilorhynchus* attains in various localities. I have notes of nineteen Indian specimens measured by myself.

Of these the lowest wing-measurement is 15·4 inches, in one specimen; the wing measures between 15·4 and 16 in six, between 16 and 17 in eight, between 17 and 18 in three, and above 18 (viz. 18·1) in one. The smallest length of the tarsus

in this series is 1·9 inches, in one specimen; the length is 2 in twelve, 2·1 in five, and 2·2 in one. The middle toe *s. u.* measured 1·9 inches in three specimens, 2 in seven, 2·1 in five, and 2·2 in four.

The largest male in the above series (ascertained to be so by careful dissection) has a wing-measurement of 16·55, tarsus 2·1, and middle toe *s. u.* 2·0.

With regard to the dimensions of Indian females of this species, Mr. Hume writes thus in 'Stray Feathers,' vol. iii. p. 36 :—"The females vary in length from 26 to 28; the smallest wing of any female I have met with was 15·75; and I have one before me, now, with the wing full 18."

Mr. Holdsworth, in the P. Z. S. for 1872, p. 415, and Captain Legge, at p. 91 of his 'Birds of Ceylon,' mention an opinion which I formerly entertained, that specimens of *P. ptilorhynchus* "from Ceylon are usually larger than those from India;" but I have subsequently ascertained that this opinion was ill founded, there being little, if any, difference between the average size of specimens obtained in India and Ceylon. For detailed measurements of Ceylon specimens I would refer to the account of this species in Captain Legge's work.

I have noted the following measurements, taken by myself from specimens collected in various continental localities to the east of the Bay of Bengal.

	Wing.	Tarsus.	
<i>In the collection of the late Lord Tweeddale.</i>			
From Pegu (marked ♀)	14·8	1·8	
„ Tonghoo.....	15·5	2·0	
„ „	15·7	2·0	
„ Malacca	17·5	2·0	
„ „ (apparently a very young bird)	12·75	1·75	
	Wing.	Tarsus.	Mid. toe <i>s. u.</i>
<i>In the Norwich Museum.</i>			
From Siam (marked ♀)	16·4	2·0	2·1
„ Saigon	16·9	2·0	2·0

Mr. Hume, in 'Stray Feathers,' vol. iii. pp. 36, 37, gives the measurements of three small females from Thayetmyo, and adds, "Taking the dimensions of these three females,

there can, I think, be no doubt that the Thayetmyo race is considerably smaller than the Indian; but I cannot say that it seems to me to be entitled to specific separation."

Mr. Hume is disposed to identify these small Thayetmyo birds with *Pernis brachypterus* of Blyth. This view is probably correct; but, at the same time, it should be borne in mind that Mr. Blyth stated that, in the specimen for which he proposed the specific name of *brachypterus*, the "primaries were not fully grown" (*vide* 'Journal of the Asiatic Society of Bengal,' extra no. for August 1875, p. 60).

The following are measurements which I have taken from various insular specimens of *P. ptilorhynchus*.

	Wing.	Tarsus.	Mid. toe s.u.
From Java, in the Derby Museum, - Liverpool.....	17.8	2.0	2.0
From near Batavia, Java, in the Norwich Museum (marked ♂ by the collector, Dr. Bernstein)....	17.4	2.2	2.3
From South-Eastern Sumatra, in the collection of the late Lord Tweeddale	17.0	2.2	2.1
From Western Sumatra, in the col- lection of Lieut. Wardlaw Ramsay	17.3	2.0	2.2
From Borneo, in the collection of Canon Tristram	17.1	2.2	2.0
From the Philippine Islands, in the Derby Museum, Liverpool	16.6	2.0	2.0
From the Philippine Islands, in the Norwich Museum	16.0	1.9	1.9
From Butuan, in the Island of Min- danao, in the collection of the late Lord Tweeddale (marked ♀ by the collector, Mr. Everett)	15.5	2.0	2.0

The third, and only other known, species of the genus *Pernis* is *P. celebensis*, peculiar to the Celebes islands, and remarkable for the extraordinary similarity of its markings and coloration to the adult (but not to the immature) plumage of *Limnaëtus lanceolatus*, the powerful Hawk-Eagle, which is also restricted to the Celebes group. This species does not appear to be subject to individual variations of plu-

mage, like its congeners *P. apivorus* and *P. ptilorhynchus*; and, judging from the few specimens I have seen, the immature dress differs from the adult but very slightly, if at all; probably, however, there will be found, on comparison of a sufficient series, some little difference at different ages in the markings of the tail and quill-feathers of the wings. The head, so far as I have observed, is dark grey on the sides only, and chiefly on the lores. Some specimens are crested, others are not so; the longest crest I have seen in this species measured 2 inches, and was on a specimen in the possession of the late Lord Tweeddale.

On comparing the dimensions of four specimens, which I have measured, with those furnished by Mr. Sharpe, I find that in *P. celebensis* the wing-measurement varies from 14.1 to 15.5 inches, the tarsus from 1.9 to 2.25, and the middle toe *s. u.* from 1.75 to 2.

XVII.—*Note on Sumatran Specimens of Accipiter stevensoni and Scops lempiji.* By J. H. GURNEY.

IN the preceding article I have referred to a specimen of *Pernis ptilorhynchus*, kindly lent to me by Lieut. Wardlaw Ramsay, who received it in a collection from the hill region of Western Sumatra. The same collection contained two specimens of *Accipiter stevensoni*, a species which, I believe, has not previously been recorded from Sumatra: one of these is an adult male, closely corresponding with the type specimen in the Norwich Museum; the other I consider to be an immature female, though it was marked by the collector as a male.

The collection also contained a specimen of the large race of *Scops lempiji*, noticed by me at p. 471 of 'The Ibis' for 1879. This specimen is slightly smaller than the two Sumatran examples there recorded, and is somewhat less thickly feathered on the lower part of the tarsus; the contrast between the dark and light portions of the plumage is also more marked, especially on the primaries; its measurements are, wing 6.8 inches, tarsus 1.5, middle toe *s. u.* .9.